

REMARKS

Claims 1-3, 24 and 25 are pending. By this Amendment, the specification, Abstract and claims 1-3 are amended and claims 24 and 25 are added.

Applicant appreciates the indication of allowable subject matter in claim 3. For the reasons discussed below, all of claims 1-3, 24 and 25 are allowable.

The specification was objected to based on an informality. By this Amendment, the priority information has been updated. It is respectfully requested that the objection be withdrawn.

The Abstract was objected to based on an informality. By this Amendment, the Abstract has been amended responsive to the objection. It is respectfully requested that the objection be withdrawn.

Claims 1-3 were rejected under 35 U.S.C. §112, second paragraph. By this Amendment, claim 1 has been amended responsive to the comments in the Office Action. It is respectfully requested that the rejection be withdrawn.

Claims 1 and 2 were rejected under 35 U.S.C. §102(b) over Yazawa et al. (Yazawa), U.S. Patent No. 5,960,534. The rejection is respectfully traversed.

Yazawa fails to disclose the steps of (a) rotating, independently from the rotation of a rotatable body, an engaging member common to a plurality of suction nozzles, to a position corresponding to one of the suction nozzles that holds one of the plurality of electric components that is to be mounted next, and (b) moving, in a direction parallel to an axis line of the rotatable body, the engaging member to engage the one suction nozzle, so that the one suction nozzle is moved toward a board supporting device and the electric component held by the one suction nozzle is mounted on a printed-wiring board, as recited in claim 1.

Yazawa discloses a method of mounting electronic parts 25 on a surface of a circuit board 24 by using an S-Z shaft 1, an arm member 2, a plurality of Z-shafts 3, and cam

means 4 (Fig. 1). The cam means 4 includes a cylindrical cam 10 that is rotatable around the S-Z shaft 1, a cam roller 11 that rolls on the cylindrical cam 10, and a roller supporting bracket 12 for transmitting a vertical displacement of the cam roller 11 to the Z-shaft 3 (col. 3, lines 1-5 and col. 4, lines 43-47). The cylindrical cam 10 has only one incurved part 43, shown in Fig. 10, for producing the vertical displacement of the cam roller 11.

Page 2 of the Office Action argues that Yazawa's cylindrical cam 10 corresponds to the engaging member of claim 1. However, the cylindrical cam 10 with the incurved part 43 does not correspond to the engaging member of claim 1 because the cylindrical cam 10 is not moved in an axial direction parallel to an axis line of the S-Z shaft 1 or the arm member 2. Conversely, as recited in claim 1, the engaging member is moved in a direction parallel to the axis line of the rotatable body. Accordingly, Yazawa fails to disclose all the features recited in claim 1.

Yazawa suffers deficiencies that the steps of claim 1 overcome because the incurved part 43 of the cylindrical cam 10 occupies a considerably large area or angle in a circumferential direction of the S-Z shaft 1 because the incurved part 43 must smoothly continue to the remaining portions of the cylindrical cam 10 (Fig. 10). Therefore, the total number of Z-shafts 3 that can be supported by the arm member 2 is limited to a considerably small number. Otherwise, the total amount of axial-direction displacement of each Z-shaft 3 that can be produced by the incurved part 43 is limited to a considerably small amount or distance. The steps of claim 1 overcomes this deficiency because not only is the engaging member rotated but is also moved in the direction parallel to the axis line of the rotatable body.

Yazawa also fails to disclose the step of processing the taken image of the electric component held by each of the suction nozzles, to determine at least one position error of the electric component held by said each suction nozzle, as recited in claim 2.

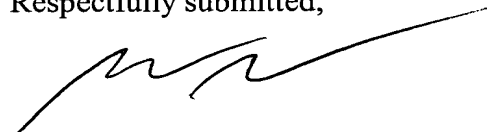
In Yazawa, when the mounted parts 25 are attracted by the Z-shafts 3, the positions of the mounted parts 25 are simultaneously recognized by one CCD camera (col. 7, lines 24-26). However, Yazawa does not teach or suggest processing the taken images to determine at least one position error of the mounted parts 25, or controlling the rotation of the arm member 2 and the movement of an apparatus frame 4 to eliminate at least one position error.

In view of the foregoing, Yazawa fails to disclose all of the features recited in claims 1 and 2. It is respectfully requested that the rejection be withdrawn.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-3, 24 are 25 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



James A. Oliff
Registration No. 27,075

Scott M. Schulte
Registration No. 44,325

JAO:SMS/sxb
Attachment:
Amended Abstract

Date: June 23, 2005
OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

<p>DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry; Charge any fee due to our Deposit Account No. 15-0461</p>
--